## DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

#### LAKE TROPHIC DATA

### MORPHOMETRIC:

Lake: GREENS P	POND	Lake Area (ha):	16.19
Town:	MERRIMACK	Maximum depth (m):	4.3
County: H	Hillsborough	Mean depth (m):	1.0
River Basin: M		Volume (m³):	158000
Latitude: 4		Relative depth:	0.9
Longitude: 7	71°31'08" W	Shore configuration:	1.51
Elevation (ft)	): 195	Areal water load (m/yr):	: 11.86
Shore length (	(m): 2150	Flushing rate (yr <sup>-1</sup> ):	12.20
Watershed area	a (ha): 402.1	P retention coeff.:	0.53
% watershed po	onded: 7.5	Lake type:	natural

BIOLOGICAL:	20 January 1998	12 August 1997
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 45%	OSCILLATORIA 85%
#2	TABELLARIA 15%	
#3		
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		8.42
DOM. ZOOPLANKTON (% TOTAL) #1	NAUPLIUS LARVA 31%	KELLICOTTIA 39%
#2	KERATELLA 14%	NAUPLIUS LARVA 29%
#3	BOSMINA 14%	CYCLOPOID COPEPOD 10%
ROTIFERS/LITER	32	147
MICROCRUSTACEA/LITER	119	133
ZOOPLANKTON ABUNDANCE (#/L)	157	307
VASCULAR PLANT ABUNDANCE		Very abundant
SECCHI DISK TRANSPARENCY (m)		2.0
BOTTOM DISSOLVED OXYGEN (mg/L)	7.9	0.1
BACTERIA (E. coli, #/100 m1) #1		< 1
#2		< 1
#3		

# SUMMER THERMAL STRATIFICATION:

# weakly stratified

Depth of thermocline (m): None Hypolimnion volume  $(m^3)$ : None Anoxic volume  $(m^3)$ : 18

18000

CHEMICAL: Lake: GREENS POND Town: MERRIMACK					
20 January 1998		12 August 1997			
DEPTH (m)	1.0	3.0	1.5		3.0
pH (units)	6.8	6.8	6.2		6.2
A.N.C. (Alkalinity)	13.2	14.3	13.1		13.5
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.50	0.40	0.80		0.46
TOTAL PHOSPHORUS	0.008	0.008	0.026		0.040
CONDUCTIVITY (µmhos/cm)	174.4	184.4	144.5		141.8
APPARENT COLOR (cpu)	16	17	37		36
MAGNESIUM			1.34		
CALCIUM			7.6		
SODIUM			16.8		
POTASSIUM			0.81		
CHLORIDE	39	42	32		31
SULFATE	7	7	6		6
TN : TP	63	50	31		12
CALCITE SATURATION INDEX			3.1		

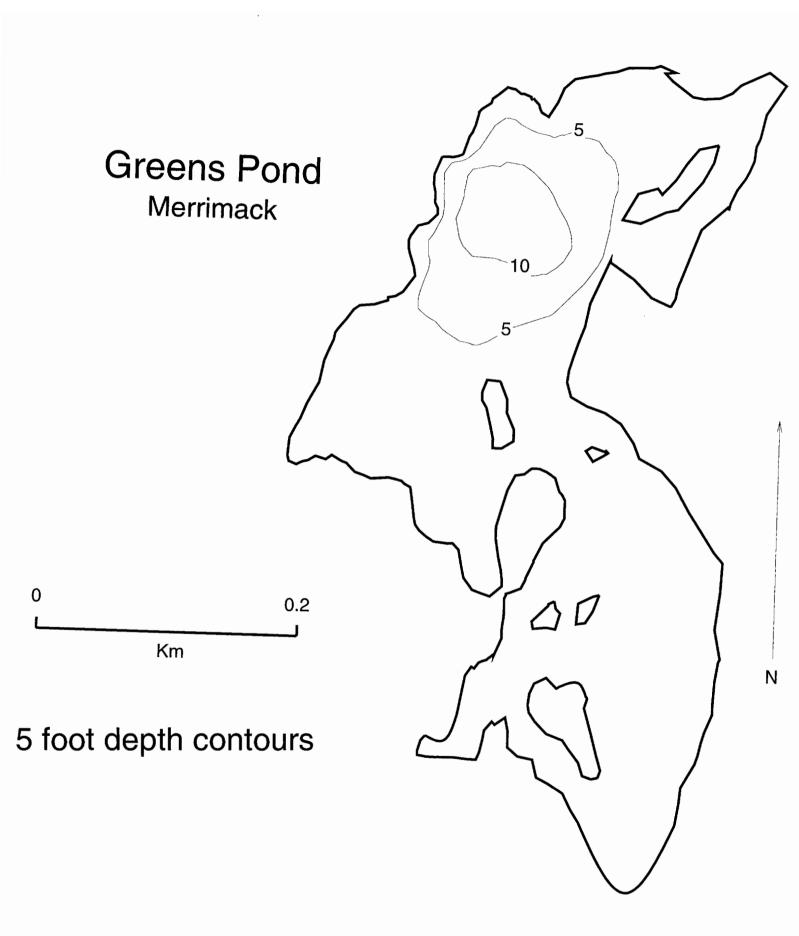
All results in mg/L unless indicated otherwise

### TROPHIC CLASSIFICATION: 1997

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	4	6	2	12	Eutro.

### COMMENTS:

- 1. This is a former back-up water supply for the Town of Merrimack and still has signs posted stating it is a public water supply.
- 2. Much of this pond is more a wetland than a pond, with very little open water.
- 3. A bloom of the blue-green alga Oscillatoria was present during the summer sampling.
- 4. Elevated conductivity, chloride and sodium values suggest salted road runoff enters the pond.
- 5. A great blue heron, six Canadian geese and three beaver huts were observed on the pond.



#### FIELD DATA SHEET

LAKE: GREENS POND DATE: 08/12/97

TOWN: MERRIMACK

WEATHER: CLEAR, BREEZY & WARM

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	24.7	5.2	62 %
1.0	23.6	3.9	45 %
2.0	21.5	0.1	1 %
3.0	17.1	4.1	42 %
3.5	15.3	0.1	1 %
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	(M) 0.1 1.0 2.0 3.0	(M)     (°C)       0.1     24.7       1.0     23.6       2.0     21.5       3.0     17.1	(M)     (°C)     OXYGEN       0.1     24.7     5.2       1.0     23.6     3.9       2.0     21.5     0.1       3.0     17.1     4.1

SECCHI DISK (m):

TIME:

2.0

BOTTOM DEPTH (m):

4.0 1145

COMMENTS: 1. Despite the shallow depth, this isolated deep hole had more than a 9° C. temperature drop from top to bottom, and no dissolved oxygen

at the bottom.

\*Dissolved oxygen values are in mg/L

2. The 4.1 D.O. at 3 meters may be due to an algal layer at that depth. 111-84

# AQUATIC PLANT SURVEY

LAK	E: GREENS POND	FOWN: MERRIMACK	DATE: 08/12/97
Vor	PLANT	NAME	ADUNDANCE
Кеу	GENERIC	COMMON	ABUNDANCE
P	Pontederia cordata	Pickerelweed	Common
J	Juncus	Rush	Common
В	Brasenia schreberi	Water shield	Common
N	Nymphaea	White water lily	Abundant
M	Potamogeton	Pondweed	Common
U	Utricularia	Bladderwort	Abundant
E	Eriocaulon septangulare	Pipewort	Scattered
Y	Nuphar	Yellow water lily	Scattered
G	Gramineae	Grass family	Scattered
S	Sparganium	Bur reed	Scattered

### OVERALL ABUNDANCE: Very abundant

# **GENERAL OBSERVATIONS:**

- 1. Most of the pond is less than 5 feet deep and is very weedy; much of the pond was not navigable because of dense plant growth.
- 2. There was a small area of open water that corresponded to about an 8 foot depth (see bathymetric map).